

**U.S. Nuclear Regulatory Commission  
Site-Specific SRO Written Examination**

**Applicant Information**

Name:	
Date: 12/ /09	Facility/Unit: St. Lucie Plant
Region: I <input type="checkbox"/> II <input checked="" type="checkbox"/> III <input type="checkbox"/> IV <input type="checkbox"/>	Reactor Type: W <input type="checkbox"/> CE <input checked="" type="checkbox"/> BW <input type="checkbox"/> GE <input type="checkbox"/>
Start Time:	Finish Time:

**Instructions**

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. To pass the examination you must achieve a final grade of at least 80.00 percent overall, with 70.00 percent or better on the SRO-only items if given in conjunction with the RO exam; SRO-only exams given alone require a final grade of 80.00 percent to pass. You have 8 hours to complete the combined examination, and 3 hours if you are only taking the SRO portion.

**Applicant Certification**

All work done on this examination is my own. I have neither given nor received aid.

\_\_\_\_\_   
Applicant's Signature

**Results**

Examination Value	_____ Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Percent

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Question 1

Which ONE of the following Safety Function(s) in 1/2-EOP-01, "SPTAs", can be FULLY evaluated by using the Qualified System Parameter Display System (QSPDS)?

- A. ONLY RCS Pressure Control
- B. ONLY Core Heat Removal
- C. Core Heat Removal & RCS Heat Removal
- D. RCS Pressure Control & RCS Heat Removal

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Question 2

Given the following conditions on Unit 1:

- 1-EOP-03, "LOCA" is being implemented
- Pressurizer Pressure 900 psia and slowly lowering.
- $T_{HOT}$  is 508°F and slowly lowering.
- Pressurizer Level is 70% and slowly rising.
- Rep. CET 515°F and slowly lowering.
- Both Steam Generators are 25% Narrow Range and rising with total AFW flow of 350 gpm.
- Both Steam Generator pressures are 660 psia slowly lowering.
- ECCS flow is 650 gpm.
- Containment Temperature is 185°F and slowly lowering.

Which ONE of the following states the strategy that should be implemented?

Cooldown and \_\_\_\_\_.

- A. throttle ECCS flow to allow Pressurizer level to lower to meet the Inventory Control Safety Function.
- B. ensure 1-EOP-99, Figure 2 is being maintained. Subcooling requirements take precedence over Pressurizer level.
- C. depressurize to maximize ECCS flow. Maximizing ECCS flow takes precedence over Pressurizer level and subcooling.
- D. throttle ECCS flow as Pressurizer level approaches 100%. Preventing Pressurizer level from going solid takes precedence over subcooling requirements.

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Question 3

A Loss of Coolant Accident has occurred on Unit 1 with the following conditions:

- RCS T-hot is 512°F.
- Pressurizer Pressure is 1120 psia.

Which ONE of the following describes the RCP operating strategy and the reason for such?

Trip:

- A. ALL RCP's to enhance RCS heat removal.
- B. ALL RCP's due to loss of RCP NPSH.
- C. ONE RCP in each loop to enhance RCS heat removal.
- D. ONE RCP due to loss of RCS NPSH.

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Question 4

Unit 1 is operating at 100% power when the following events occur:

- ONE of the CCW radiation monitors has just gone into alarm.
- CCW Surge Tank level is 80% and rising.
- DCS Computer point 33x194\_A 1B1 RCP CL Tube Lk Vlv Cls / Pwr FA is in alarm.
- RCP 1B1 lower seal temperature is increasing.
- HCV-14-11B1, "Seal Cooler Isolation Valve", indicates closed.

1) Which ONE of the following has closed HCV-14-11B1?

2) What actions should the crew take?

- A. 1) High radiation in the CCW system.  
2) Make preparations to shut down the unit and trip the 1B1 RCP.
- B. 1) High radiation in the CCW system.  
2) Override open HCV-14-11B1. THEN perform a down power. Trip the 1B1 RCP when the Unit is shut down.
- C. 1) High seal cooler outlet temperature.  
2) Make preparations to shut down the unit and trip the 1B1 RCP.
- D. 1) High seal cooler outlet temperature.  
2) Override open HCV-14-11B1. THEN perform a down power. Trip the 1B1 RCP when the Unit is shut down.

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Question 5

A RCS leak is in progress on Unit 1. Given the following at time 12:30:

- 50% power steady state.
- V2504, RWT to Charging pumps, is closed and racked out.
- Pressurizer Level is 58% and steady.
- Letdown Flow is 29 gpm.
- ALL Charging Pumps are running.
- VCT Level is 40% and lowering.
- RCP 1A1 CBO: 1.4 gpm
- RCP 1B1 CBO: 1.4 gpm
- RCP 1A2 CBO: 1.4 gpm
- RCP 1B2 CBO: 1.3 gpm

Which ONE of the following would be the expected time that a loss of Charging would occur?  
(Assume NO Operator actions are taken.)

- A. 12:37 - 12:38
- B. 12:39 - 12:40
- C. 12:41 - 12:42
- D. 12:53 - 12:54

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Question 6

Unit 2 is in 2-NOP-01.04, "RCS Reduced Inventory and Mid-Loop Operation" with the following:

- RCS Level is at 29 feet 10 inches.
- Reactor Vessel Head is installed.
- Nozzle dams are being installed.

1) Which SDC Loop will be operating and:

2) If loss of SDC were to occur, which of the following conditions could result in RCS pressurization and loss of inventory?

- A. 1) 2A SDC Loop  
2) Hot leg nozzle dams installed prior to cold leg nozzle dams being installed.
- B. 1) 2B SDC Loop  
2) Hot leg nozzle dams installed prior to cold leg nozzle dams being installed.
- C. 1) 2A SDC Loop  
2) Cold leg nozzle dams installed prior to hot leg nozzle dams being installed.
- D. 1) 2B SDC Loop  
2) Cold leg nozzle dams installed prior to hot leg nozzle dams being installed.

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Question 7

ONLY on \_\_\_\_ (1) \_\_\_\_ will MV-14-18, CCW Header A Supply to Fuel Pool HX, receive a SIAS close signal to ensure \_\_\_\_ (2) \_\_\_\_.

- A. 1) Unit 1;  
2) adequate CCW Flow is available to essential ESF components during a Design Basis Accident (DBA)..
- B. 1) Unit 1;  
2) train separation in the event of a Design Basis Accident (DBA).
- C. 1) Unit 2;  
2) adequate CCW Flow is available to essential ESF components during a Design Basis Accident (DBA)..
- D. 1) Unit 2;  
2) train separation in the event of a Design Basis Accident (DBA).

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Question 8

Unit 1 is operating at 100% power when the selected channel LT-1110X, "Pressurizer Level Transmitter" fails LOW.

What will be the FIRST effect this failure has on the following Actual Pressurizer Parameters? (Assume NO operator actions are taken.)

<u>Pressurizer Pressure</u>	<u>Saturation Temperature</u>
A. Rising	Rising
B. Lowering	Lowering
C. Lowering	Rising
D. Rising	Lowering

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Question 9

Unit 2 is in 2-EOP-04, "Steam Generator Tube Rupture", with a Loss Of Offsite Power (LOOP). The 2B S/G has been isolated and the "close" fuses for RCPs 2B1 & 2B2 have been removed.

Which ONE of the following states the reason for removal of the "close" fuses?

To prevent an inadvertent RCP start, upon power restoration, that could result in:

- A. RCP seal failure.
- B. a positive reactivity event.
- C. operating RCP's outside of NPSH requirements.
- D. a pressure spike that could lift the secondary safeties.

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Question 10

Unit 1 was operating at 100% power when it experienced a Station Blackout (SBO).  
Given the following events and conditions:

- Unit 2 has had a Loss Of Offsite Power (LOOP).
- 2B EDG failed to start and can NOT be started.
- 2A EDG is supplying the 2A3 4.16 KVAC bus.
- 2AB 4.16 KVAC bus is lined up from 2A3 4.16 KVAC bus.
- BOTH Unit 1 & 2 SBO Cross Tie Breakers are open.
- ALL associated Normal/Isolate Switches are in Normal.

Based on these plant events and conditions:

- 1) Which of the following are the expected indications of the SBO Crosstie Breaker Permissive Lights in BOTH Control Rooms?
- 2) Which of the following are the manipulations needed to restore power to the 1AB 4.16 KVAC bus?

- A. 1) Unit 1 ON Unit 2 OFF  
2) Close Unit 1 SBO Cross Tie Breaker prior to closing Unit 2 SBO Cross Tie Breaker.
- B. 1) Unit 1 ON Unit 2 OFF  
2) Close Unit 2 SBO Cross Tie Breaker prior to closing Unit 1 SBO Cross Tie Breaker.
- C. 1) Unit 1 OFF Unit 2 ON  
2) Close Unit 1 SBO Cross Tie Breaker prior to closing Unit 2 SBO Cross Tie Breaker.
- D. 1) Unit 1 OFF Unit 2 ON  
2) Close Unit 2 SBO Cross Tie Breaker prior to closing Unit 1 SBO Cross Tie Breaker.

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Question 11

While performing 2-GOP-305, "Reactor Plant Cooldown - Hot Standby To Cold Shutdown", with SIAS blocked a Loss Of Offsite Power (LOOP) occurred with the failure of BOTH Diesel Generators to start.

Plant conditions indicate:

- Pressurizer pressure is 1520 psia and lowering.
- T-hot is 548°F and steady.
- T-cold is 542°F and steady.
- Rep-Cet is 552°F and steady.
- A and B ADV's are 40% open
- Pressurizer Level is 32% and lowering.
- BOTH S/G Levels are 24% Narrow Range and constant with 2C AFW flow rate of 150 gpm per S/G.
- RVLMS sensors 1-8 are covered.

Based on the present plant conditions, which ONE of the following:

- 1) Procedures will be FULLY implemented?
- 2) Is the current method of heat removal and which parameter, if increased, would have the GREATEST impact on enhancing natural circulation?
  - A. 1) 2-0120039, "NATURAL CIRCULATION COOLDOWN".  
2) Single Phase Natural Circulation. Increasing both ADV's output to 80%.
  - B. 1) 2-0120039, "NATURAL CIRCULATION COOLDOWN".  
2) Two Phase Natural Circulation. Increasing AFW flow to 200 gpm per S/G
  - C. 1) 2-ONP-01.01, "PLANT CONDITION 1 S/G HEAT REMOVAL LTOP NOT IN EFFECT".  
2) Single Phase Natural Circulation. Increasing both ADV's output to 80%.
  - D. 1) 2-ONP-01.01, "PLANT CONDITION 1 S/G HEAT REMOVAL LTOP NOT IN EFFECT".  
2) Two Phase Natural Circulation. Increasing AFW flow to 200 gpm per S/G.

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Question 12

Unit 1 is operating at 100% when a loss of the 120 VAC Instrument Bus 1MA occurs.

Which ONE of the following Control Room alarms would **NOT** be expected?

- A. Q-19 1B S/G PRESS MSIS CHANNEL TRIP
- B. Q-16 CNTMT RAD HIGH CIS CHANNEL TRIP
- C. R-10 ENGINEERED SAFEGUARDS ATI FAULT
- D. R-11 CNTMT PRESS HIGH CSAS CHANNEL TRIP

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Question 13

The 1A Emergency Diesel Generator (EDG) is running fully loaded during a surveillance. A loss of DC control power to the 1A EDG occurs.

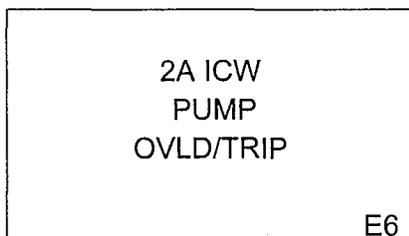
Which ONE of the following is the method to manually trip the EDG for the above conditions?

- A. Depressing the engine mounted emergency trip pushbutton.
- B. Depressing the emergency trip pushbutton on the Control Room RTGB.
- C. Manually actuating the overspeed trip (OST) mechanism.
- D. Manually actuating the Lockout Relay.

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Question 14

Unit 2 is at 100% power with 2C ICW pump on an Equipment Clearance.  
The following alarm is received:



2-0640030, "Intake Cooling Water System", is being implemented. ALL attempts to restart 2A ICW pump are unsuccessful.

Prior to reducing turbine load which ONE of the following will have the GREATEST impact in maintaining available heat removal capacity?

- A. Reduce Main Generator MVARs.
- B. Place BOTH Lube Oil Coolers in service.
- C. Ensure the Open Blowdown Heat Exchanger is aligned to the unaffected header.
- D. Close the "TCW Heat Exchanger cross-tie", SB13139, and open the 'A' "TCW Heat Exchanger shell side isolation valve", SB13147, to maximize TCW Cooling.

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Question 15

Unit 2 Control Room is performing an up power per 2-GOP-201, "Reactor Plant Startup", from 70% to 100% power with the following plant conditions:

- Dilution flow: 20gpm
- Turbine Load rate: 2.5 MW/min
- 2A & 2B Charging Pumps are running.

The following alarm is received in the Unit 2 Control Room:



If Instrument Air continues to lower which ONE of the following responses (assuming NO Operator actions are taken) are expected?

- |    | <u>T-avg</u> | <u>VCT Level</u> |
|----|--------------|------------------|
| A. | Lowering     | Rising           |
| B. | Rising       | Lowering         |
| C. | Rising       | Rising           |
| D. | Lowering     | Lowering         |

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Question 16

Unit 1 is operating with the following plant conditions:

- Main Generator is 60 MVARs in the Lag.
- Main Generator Gross MWs are 895.
- The Unit is only able to maintain 45 psig Hydrogen pressure.

1) What would the equipment concern be if an electrical grid disturbance resulted in adding 290 Leading MVARs?

2) What actions could the Control Board operator take to reduce the equipment concern?

- A. 1) rotor overheating  
2) Coordinate with Unit 2 and Raise output of Voltage Regulator.
- B. 1) stator overheating  
2) Coordinate with Unit 2 and Raise output of Voltage Regulator.
- C. 1) rotor overheating  
2) Coordinate with Unit 2 and Lower output on the Voltage Regulator.
- D. 1) stator overheating  
2) Coordinate with Unit 2 and Lower output on Voltage Regulator.

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Question 17

Unit 2 was at 100% power when a Loss Of Offsite Power (LOOP) has occurred. Following the Reactor trip a steam leak occurs inside the Containment on the 2A S/G. The following conditions now exist:

- 2A S/G is 590 psia.
- 2B S/G is 615 psia.
- Containment pressure is 3.1 psig.
- "Main Steam Isolation Valve", HCV-08-1A, is CLOSED.
- "Main Steam Isolation Valve", HCV-08-1B, is OPEN.

Which ONE of the following identifies the status of Main Steam Isolation Signal (MSIS) and the Main Steam Isolation Valves?

1) MSIS Channel 'A' has actuated on:

2) HCV-08-1B:

- A. 1) low 2A S/G pressure and has closed HCV-08-1A.  
2) will NOT close until 2B S/G pressure reaches MSIS Channel 'B' setpoint.
- B. 1) low 2A S/G pressure and has closed HCV-08-1A.  
2) should have also closed.
- C. 1) high Containment pressure AND low 2A S/G pressure closing HCV-08-1A.  
2) should have also closed.
- D. 1) high Containment pressure AND low 2A S/G pressure closing HCV-08-1A.  
2) is open due to failure of MSIS Channel 'B' to actuate.

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Question 18

Unit 1 is 60% power with BOTH 1A & 1B MFW Pumps running when an inadvertent Channel 'A' Main Steam Isolation Signal (MSIS) occurs resulting in a Reactor trip.

Which ONE of the following describes restoration of S/G Levels following the Reactor trip?

- A. Manual AFAS 1 & 2 is required to restore BOTH 1A & 1B S/G Levels.
- B. MFW Pump 1B will restore 1B S/G Level.  
Auxiliary Feedwater will automatically restore 1A S/G level.
- C. Auxiliary Feedwater will automatically restore 1B S/G Level.  
Manual AFAS-1 is required to restore 1A S/G Level.
- D. Auxiliary Feedwater will automatically restore BOTH 1A & 1B S/G Levels.

Question 19

Given the following on Unit 2:

- 100% power steady state, MOC
- Control Element Assembly (CEA) # 2 of Shutdown Group A drops to the bottom of the core.
- ALL required IMMEDIATE operator actions of 2-0110030, "CEA Off-Normal Operation and Re-alignment", have been taken.
- CEA # 2 has been determined to be operable.

The interlock that is required to be bypassed to withdraw CEA # 2 is \_\_\_\_\_ and the design basis for the interlock is \_\_\_\_\_.

- A. 1) CEA Motion Inhibit.  
2) to prevent CEA withdrawal or insertion when abnormal CEA alignment is detected.
- B. 1) Shutdown Group Interlock Bypass.  
2) to prevent CEA withdrawal or insertion when abnormal CEA alignment is detected.
- C. 1) CEA Motion Inhibit.  
2) to prevent Shutdown CEA withdrawal when Reg Group CEA's are NOT at the Lower Electrical Limit.
- D. 1) Shutdown Group Interlock Bypass.  
2) to prevent Shutdown CEA withdrawal when Reg Group CEA's are NOT at the Lower Electrical Limit.

Question 20

Unit 2 is 45% power steady state. A leak on the reference leg tap associated with selected "Pressurizer (Pzr.) Level Controller", LT1110X occurs.

Assuming NO Operator actions what will be the response of the Pressurizer Pressure Level Control System (PPLCS)?

<u>Indicated Pzr Level</u>	<u>Actual Pzr Level</u>
A. decreases	increases
B. increases	increases
C. increases	decreases
D. decreases	decreases

Question 21

During a Nuclear Instrument (NI) surveillance by I&C a check on detector input power supply voltage was found to be HIGH by 100 VDC.

Which ONE of the following NIs is MOST affected by this condition?

- A. Unit 2 Logarithmic Startup
- B. Unit 1 Wide Range Log Safety
- C. Unit 1 Linear Power Range Safety
- D. Unit 2 Excore Neutron Wide Range

## Question 22

On Unit 2 a spent fuel bundle has been dropped while being transported across the Spent Fuel Pool by the Spent Fuel Handling Machine. The status of the Fuel Handling Radiation Monitors as indicated on PC-11 are:

<u>SA</u>		<u>SB</u>	
GAG-007	Red	GAG-008	Red
GAG-009	Amber	GAG-010	Amber
GAG-011	Amber	GAG-012	Red

If at the same time Unit 2 dropped their fuel assembly and had a spurious CIAS actuation and has NOT been reset, which ONE of the following correctly describes the status of the Fuel Handling Building Ventilation System?

- A. It remains in its normal configuration.
- B. Normal ventilation isolates but Spent Fuel Pool exhaust does NOT transfer to the Shield Building Ventilation exhaust system.
- C. Normal ventilation isolates and Spent Fuel Pool exhaust transfers to BOTH trains of the Shield Building Ventilation exhaust system.
- D. Normal ventilation isolates and Spent Fuel Pool exhaust transfers to ONLY one train of the Shield Building Ventilation exhaust system.

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Question 23

A Steam Generator Tube Rupture has occurred on 1B S/G with the following plant conditions:

- 1 RCP in each loop is running.
- T-avg is 475°F.
- 1B S/G isolation is complete.
- 1B S/G pressure is 840 psia.

RCS depressurization is to be performed in accordance with 1-EOP-04, "Steam Generator Tube Rupture".

The RCS pressure band should be \_\_\_\_ (1) \_\_\_\_ to: \_\_\_\_ (2) \_\_\_\_.

- A. 1) 790 - 890 psia;  
2) meet RCP seal requirements AND to minimize RCS leakage into the S/G.
- B. 1) 790 - 890 psia;  
2) allow control of ruptured S/G level while minimizing dilution AND to minimize RCS leakage into the S/G.
- C. 1) 840 - 890 psia;  
2) meet RCP seal requirements AND to prevent lifting a secondary safety valve.
- D. 1) 840 - 890 psia;  
2) allow control of ruptured S/G level while minimizing dilution AND to prevent lifting a secondary safety valve.

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Question 24

Unit 1 is performing a startup and is attempting to draw a vacuum in the Main Condenser. The Control Room has directed the NPO to place the 1B Hogging Ejector in service.

The NPO throttles V16203 "Aux. Stm. To 1B Hogging Ejector Isol." open to approximately 200 psig steam pressure and then opens V12576, "1B Hogging Ejector Inlet from Cndrs Isol".

Little to no steam flow from the Hogging ejector exhaust is observed.

Which ONE of the following is the most probable cause of little to NO steam flow from the Hogging ejector exhaust and the Operator response?

- A. Steam pressure is too low.  
Open V16203 to approximately 400 psig steam pressure.
- B. Steam pressure is too low.  
Verify proper operation of PCV-12-29 "Steam pressure control valve to SJAEs".
- C. The Hogging ejector exhaust exhibits indication of Ejector stalling.  
Request permission from the Control Room to place the 1A Hogging Ejector in service.
- D. The Hogging ejector exhaust exhibits indication of Ejector stalling.  
Close V12576, 1B Hogging Ejector Inlet from Cndrs Isol.

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### Question 25

Unit 1 is in Mode 1, 100% power with the following conditions:

- Waste Gas Decay Tank (WGDT) 1A was recently filled (< 24 hours ago) and is currently isolated.
- Waste Gas Decay Tank 1B is in service.
- Waste Gas Decay Tank 1C has been isolated for 6 months. V6565 "Waste Gas Stop valve".has been opened and the release has just commenced.
- Prior to commencing the gas release, WGDT pressures were locally verified to be:
  - 1A WGDT pressure is 155 psig
  - 1B WGDT pressure is 15 psig
  - 1C WGDT pressure is 150 psig

15 minutes after the release is started the following is noted by the crew:

- Annunciator N-38, WASTE GAS DISCH RAD HIGH alarms.
- Channel 42 (Waste Gas Radiation Monitor) blue FAIL light is energized.
- The SNPO reports WGDT pressures are as follows:
  - 1A WGDT pressure is 115 psig and stable
  - 1B WGDT pressure is 20 psig and very slowly rising
  - 1C WGDT pressure is 120 psig and stable

- 1) Which ONE of the following is the cause of annunciator N-38
- 2) the status of the Waste Gas Radiation Monitor is:

- A. 1) WGDT 1A is cross connected to WGDT 1C.  
2) failed and V6565 is open.
- B. 1) WGDT 1C is cross connected to WGDT 1B.  
2). functioning as expected and V6565 is closed
- C. 1) WGDT 1C is cross connected to WGDT 1B.  
2) failed and V6565 is open..
- D. 1) WGDT 1A is cross connected to WGDT 1C  
2). functioning as expected and V6565 is closed

Question 26

Which ONE of the following will Automatically actuate the Unit 1 Containment Evacuation alarm?

- A. Channel A High Range Rad Monitor in Alert
- B. Channel B CIS Rad monitor in Pre-Trip
- C. Channel A High Range Rad Monitor in High Alarm
- D. Channel B CIS Rad monitor in Trip

Question 27

Given the following:

- Unit 1 has entered 1-EOP-15, "Functional Recovery Procedure".
- The RO has been directed by the Unit Supervisor to establish Hot and Cold Leg Injection per 1-EOP-99 "Appendix O", "Simultaneous Hot and Cold Leg Injection" using the most preferred method.

The most preferred method will be to align:

- A. Either 1A or 1B HPSI Pump directly to the Hot Legs.
- B. Either 1A or 1B LPSI Pump through the Hot Leg Injection.
- C. 1A HPSI pump thru the Pressurizer Auxiliary Spray line to the Hot Legs.
- D. 1A Containment Spray Pump through the Pressurizer Auxiliary Spray line to the Hot Legs.

Question 28

Which ONE of the following describes the RCP Motor Cooling air flow path and what affect will loss of CCW to the motor coolers have?

1) Air flows :

2) A Loss of CCW to the RCP Motor will result in:

- A. 1) into motor via louvers and shaft rotor blowers, passed thru two air coolers, and then exhausted to Containment.  
2) Containment air heating up prior to the RCP motor.
- B. 1) into motor via louvers and shaft rotor blowers, passed thru two air coolers, and then exhausted to Containment.  
2) the RCP motor heating up prior to the Containment.
- C. 1) thru two air coolers via louvers and shaft rotor blowers, into the motor, and then exhausted to Containment.  
2) the RCP motor heating up prior to the Containment.
- D. 1) thru two air coolers via louvers and shaft rotor blowers, into the motor, and then exhausted to Containment.  
2) Containment air heating up prior to the RCP motor.

Question 29

In accordance with 1-NOP-01.02, "RCP Operation", which ONE of the following states the use of RCP Seal Injection?

Seal Injection should \_\_\_\_ (1) \_\_\_\_ in service to an uncoupled pump \_\_\_\_ (2) \_\_\_\_.

- A. 1) NOT be placed;  
2) because seal damage may occur.
- B. 1) NOT be placed;  
2) due to potential leakage from the seal surfaces not mating.
- C. 1) be placed;  
2) to keep contaminants on the surface of the Reactor Vessel water from entering the seals.
- D. 1) be placed;  
2) to lubricate the seal surfaces as the pump is rotated for aligning and coupling.

Question 30

Given the following:

- Unit 1 is implementing 1-NOP-01.05 "Filling and Venting the RCS". The Reactor Coolant System (RCS) is operating on solid pressure control.
- BOTH LCV-2210 P and Q are in service and in MANUAL.
- BOTH PCV-2201 P and Q are in service and in AUTO.
- A system malfunction has caused RCS pressure to RISE.

Which ONE of the following describes the system malfunction?

- A. Letdown pressure transmitter PT-2201 failed HIGH
- B. Selected Pressurizer pressure transmitter PT-1100X failed HIGH
- C. Letdown pressure transmitter PT-2201 failed LOW
- D. Selected Pressurizer pressure transmitter PT-1100X failed LOW

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Question 31

Unit 1 is at 100% power when the following alarm is received:

Regenerative Heat Exchanger Outlet Temp High  M-28
--

If the temperature continues to rise which ONE of the following AUTOMATIC system responses would you expect to see and what are the required Operator actions?

- A. "Letdown isolation valve" V2516 closed. Start additional Charging pumps to clear alarm then re-establish letdown flow.
- B. "Letdown isolation valve" V2515 closed. Start additional Charging pumps to clear alarm then re-establish letdown flow.
- C. "Letdown isolation valve" V2516 closed. Stop ALL running Charging Pumps.
- D. "Letdown isolation valve" V2515 closed. Stop ALL running Charging Pumps.

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Question 32

The valve stroke test of Loop "2A SDC Suction Valve", V3480 has been conducted per OP-2-0010125A, "Surveillance Data Sheets", with the following results:

Open 40.1 sec

Closed 42.3 sec

Below are the Data Sheet 10 Criteria.

V3480	2A Shutdown Cooling Suction	Stroke Dir.	Min Allowed	Max Allowed	Limit Time
		Open	31.0	41.9	45.5
Closed	29.8	40.2	43.8		

Which ONE of the following states the required action, if any, and the status of the valve?

- A. The stroke times are less than the Limit Time, NO action required.
- B. Declare the valve inoperable and initiate a 24 hour Condition Report.
- C. Retest the valve. If the retest meets the allowable time NO further action required.
- D. Retest the valve or declare the valve inoperable. If retested and outside the allowable time, initiate a Condition Report and analyze the data verifying that the new stroke time is acceptable within 96 hours.

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Question 33

Unit 2 is operating at 100% power when the feeder breaker to MCC-2B5 (2-40520) trips open.  
How many HPSI and LPSI Cold Leg Safety Injection valves have been deenergized?

<u>HPSI Valves</u>	<u>LPSI Valves</u>
A. 1	1
B. 1	2
C. 2	1
D. 2	2

Question 34

Unit 1 is at 100% power. "Pressurizer Safety valve" V1200 discharge temperature has increased from 150°F to 220°F over the last 10 minutes.

Which ONE of the following could have caused this temperature increase?

- A. Placing the Pressurizer on Recirc.
- B. Removing the Pressurizer from Recirc.
- C. Lowering the Quench Tank pressure from 3 psig to 0.5 psig.
- D. Raising the Quench Tank pressure from 3 psig to 6 psig.

PSL HLC 19 NRC EXAM

Question 35

Unit 2 is in Mode 4 cooling down for a refueling outage. As the Unit transitions from Mode 4 to Mode 6, which ONE of the following states the required CCW equipment OPERABLE / AVAILABLE during this transition?

(Assume Mode 6, refueling cavity level is 19 feet above the Reactor Vessel Flange and Mode 6 equipment status requirements in accordance with 0010145, "Shutdown Cooling Controls".)

<u>Mode 4</u>	<u>Mode 6</u>
A. Two independent CCW loops OPERABLE	Two CCW pumps OPERABLE Two CCW HX's AVAILABLE
B. Two independent CCW Loops OPERABLE	Two CCW pumps AVAILABLE One CCW HX AVAILABLE
C. One CCW pump and HX OPERABLE and one CCW pump and HX AVAILABLE	One CCW pump OPERABLE One CCW HX OPERABLE
D. One CCW pump and One CCW HX Operable	One CCW pump AVAILABLE One CCW HX AVAILABLE

## Question 36

Unit 2 is operating at 100% power with the following:

- 2A and 2B CCW pumps running.
- ALL AB buses are aligned to the B side.

The 2C CCW pump is aligned and started to replace the 2B CCW pump. The 2B CCW pump is stopped in preparation to remove it from service for PM. The 2B CCW pump is yet to be placed in 'Pull to Lock' when the following occurs:

At time 0220 a Loss Of Offsite Power (LOOP) occurs and BOTH Diesel Generators start and load.

At time 0225 a LOCA with subsequent SIAS occurs.

Which ONE of the following identifies the status of the CCW pumps?

**At time 0221:**

- A. ALL three CCW pumps are running.
- B. ALL three CCW pumps are running.
- C. 2A and 2C CCW pumps are running.
- D. 2A and 2C CCW pumps are running.

**At time 0226:**

- ALL three CCW pumps are running.
- 2A and 2C CCW pumps are running
- ALL three CCW pumps are running.
- 2A and 2C CCW pumps are running.

PSL HLC 19 NRC EXAM

Question 37

Unit 2 is operating at 90% power with the following conditions:

- H-17 PZR CHANNEL X LEVEL HIGH/LOW, is in alarm.
- H-9 PZR CHANNEL X PRESS HIGH/LOW, is in alarm.
- Pressurizer (PZR) level is slowly rising.
- Letdown flow is dropping slowly.
- ALL PZR heaters are ON.
- BOTH Spray Valves indications are RED and GREEN.

Which ONE of the following would cause the observed conditions?  
(assuming NO OPERATOR actions)

- A. LCV-2110P, "Level Control Valve" is drifting CLOSED.
- B. PCV-2201P, "Pressure Control Valve" is drifting OPEN.
- C. The controlling PZR level channel has failed LOW.
- D. The controlling PZR level channel has failed HIGH.

PSL HLC 19 NRC EXAM

Question 38

Unit 1 is at 100% power with the following:

- Pressurizer Pressure control channel X is selected for control.
- HIC-1100, "Pressurizer Spray Valve Controller" indicates '0' (minimum) controller output.

Based on these plant conditions:

1) PT-1100X has failed:

2) assuming NO OPERATOR action, the plant will:

- A. 1) LOW.  
2) trip on TMLP.
- B. 1) LOW.  
2) trip on High Pressurizer pressure.
- C. 1) HIGH.  
2) trip on TMLP.
- D. 1) HIGH.  
2) trip on High Pressurizer pressure.

Question 39

Unit 1 is in Mode 1. A loss of the MA 120 VAC Instrument Bus occurs.

Which ONE of the following identifies the response of the Reactor Protective System as a result of the loss of the Instrument Bus?

- A. Two (2) Trip Circuit Breakers open due to a loss of power to one (1) "K" Relay.
- B. Two (2) Trip Circuit Breakers open due to a loss of power to two (2) "K" Relays.
- C. Four (4) Trip Circuit Breakers open due to a loss of power to one (1) "K" Relay.
- D. Four (4) Trip Circuit Breakers open due to a loss of power to two (2) "K" Relays.

PSL HLC 19 NRC EXAM

Question 40

Unit 2 is performing a cooldown per 2-GOP-305, "Reactor Plant Cooldown - Hot Standby To Cold Shutdown", for a refueling outage with the following conditions:

Time: 11:30

- RCS pressure is 1750 psia.
- RCS temperature is 504°F.
- 2A & 2B S/Gs are 720 psia.

Time: 11:31

- 2A Steam Line ruptures outside Containment and just upstream of the MSIV.
- RCS pressure is 1640 psia and rapidly lowering.
- S/G pressures are 580 psia and rapidly lowering.

- 1) What automatic ESFAS actuation(s) are expected?
- 2) Which procedure will be implemented to mitigate the event?

- A. 1) BOTH MSIS, and SIAS  
2) 2-EOP-05, Excess Steam Demand
- B. 1) ONLY MSIS  
2) 2-EOP-05, Excess Steam Demand
- C. 1) BOTH MSIS, and SIAS  
2) 2-ONP-01.01 Plant Condition 1 Steam Generator Heat Removal LTOP Not in Effect
- D. 1) ONLY MSIS  
2) 2-ONP-01.01 Plant Condition 1 Steam Generator Heat Removal LTOP Not in Effect)

Question 41

Unit 2 is at full power when the following conditions occur:

- Normal Charging flow was lost due to a rupture in Containment downstream of V2429, "Charging Pump Disch" at Penetration #27 Isolation.
- The alternate Charging flowpath to the RCS through the HPSI header is being aligned.

Which ONE of the following Limiting Conditions for Operation (LCO) will require the FIRST Technical Specification action during this alignment and why?

- A. LCO 3.0.3, Limiting Conditions for Operation, due to ALL Charging pumps placed in STOP.
- B. LCO 3.5.2, Emergency Core Cooling Systems, due to the A HPSI header being *inoperable*.
- C. LCO 3.1.2.2, Reactivity Control Systems, due to loss of a Boron injection flowpath.
- D. LCO 3.4.3, Pressurizer, due to the reduction in Pressurizer level from RCP Controlled Bleed-Off flow with NO charging flow.

PSL HLC 19 NRC EXAM

Question 42

Unit 1 is at 100% power when a rupture in the 1A CCW header occurs. The crew has entered 1-0310030, "Component Cooling Water Off Normal Operation".

As a result of the actions carried out in the above procedure,

- 1) how has Containment Cooling been compromised?
- 2) what actions must be taken within 45 minutes if Containment temperature can not be reduced to less than or equal to 120°F?

- A.
  - 1) Partial loss of CCW flow to the A and B Containment Coolers.
  - 2) Initiate a Reactor trip and carry out EOP-01, "Standard Post Trip Actions".
- B.
  - 1) Partial loss of CCW flow to the A and B Containment Coolers.
  - 2) Perform a down power IAW 2-ONP-22.01, "Rapid Down Power".
- C.
  - 1) Total loss of CCW flow to the A and B Containment Coolers.
  - 2) Initiate a Reactor trip and carry out EOP-01, "Standard Post Trip Actions".
- D.
  - 1) Total loss of CCW flow to the A and B Containment Coolers.
  - 2) Perform a down power IAW 2-ONP-22.01, "Rapid Down Power".

PSL HLC 19 NRC EXAM

Question 43

Unit 1 is in 1-EOP-15, "Functional Recovery".

As Containment pressure increases which ONE of the following states the MINIMUM Containment Cooling equipment that will meet the Containment Temperature and Pressure Control safety function for the specific Containment Pressure / Temp?

	<u>Containment pressure / Temp.</u>	<u>Containment cooling equip.</u>
A.	1.5 psig 125°F	One Cont. Cooling Fan
B.	11 psig 140°F	Two Cont. Cooling Fans
C.	30 psig 160°F	1A CS pp with 2800 gpm flow AND ONE Cont. Cooling Fan
D.	40 psig 190°F	1A CS pp with 2800 gpm flow AND TWO Cont. Cooling Fans

Question 44

Which ONE of the following is performed during EOP-01, "Standard Post Trip Actions" on Unit 2 but NOT on Unit 1 for a Reactor trip from 100% power?

(assume uncomplicated Reactor trip)

- A. Closing the Spillover Bypass valve MV-08-814.
- B. Placing the ADV's in AUTOMATIC.
- C. Closing the MSR block valves.
- D. Depressing the 15% Main Feedwater bypass valves reset pushbutton.

PSL HLC 19 NRC EXAM

Question 45

Unit 1 has implemented 1-EOP-15, "Functional Recovery" due to a total loss of feedwater. Once Through Cooling (OTC) has been established 15 minutes ago. The 1A Auxiliary Feedwater pump is now available as a feedwater source. BOTH Steam Generator levels indicate '0' Wide Range level.

Which ONE of the following indicates the Auxiliary Feedwater flow rate that should be initiated to the Steam Generator(s) and the bases for the flow?

- A. Feed BOTH Steam Generators with flow as low as possible for the first 5 minutes due to water hammer and thermal shock concerns of the feed ring.
- B. Feed ONE Steam Generator with flow less than 150 gpm for the first 5 minutes due to water hammer and thermal shock concerns of the feed ring.
- C. Feed BOTH Steam Generators with flow as low as possible for the first 5 minutes due to thermal shock concerns of the Steam Generator tubes.
- D. Feed ONE Steam Generator with flow less than 150 gpm for the first 5 minutes due to thermal shock concerns of the Steam Generator tubes.

PSL HLC 19 NRC EXAM

Question 46

Unit 2 is at 48% power steady state conditions with the following:

- 2A and 2B Condensate pumps are running.
- 2A Main Feedwater pump is running.

Which ONE of the following will result in the automatic trip of the 2A Main Feedwater pump?

- A. Main Feedwater suction pressure indicates 270 psig.
- B. MSIS occurs.
- C. 2A Main Feedwater pump suction valve indication changes from OPEN to CLOSED. (indication only)
- D. Main Feedwater pump lube oil pressure indicates 5 psig.

PSL HLC 19 NRC EXAM

Question 47

Given the following:

- Unit 2 has evacuated the Control Room due to a fire and has implemented 2-ONP-100.02, "Control Room Inaccessibility".
- The Unit was tripped four (4) hours ago and is currently in Hot Standby (532°F).
- Condensate Storage Tank (CST) level is 40 feet.
- Steam Generator levels are being maintained constant at 63% Narrow Range using 2A and 2B Auxiliary Feedwater pumps (AFW).
- Steam Generator pressures are 900 psia using the ADV's.

It is desired to be on SDC entry conditions in 16 hours.

Which ONE of the following is the approximate Auxiliary Feedwater flow rate (**Per Steam Generator**) that will accomplish this?

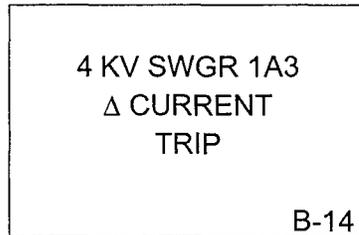
(assume linear AFW flow rate through the cooldown)

- A. 75 gpm
- B. 90 gpm
- C. 104 gpm
- D. 120 gpm

PSL HLC 19 NRC EXAM

Question 48

The following annunciator is received on RTGB 101 with Unit 1 at 100% power:



Which ONE of the following indicates the:

- 1) Status of the 1A3 4.16 KVAC bus?
  - 2) Procedure that would be implemented?
- 
- A. 1) The bus is energized from the Diesel Generator.  
2) 1-ONP-47.01, "Loss of A Safety Related A.C. Bus"
  - B. 1) The bus is de-energized but the 1A Diesel Generator is running.  
2) 1-ONP-47.01, "Loss of A Safety Related A.C. Bus"
  - C. 1) The bus is energized from the Diesel Generator.  
2) 1-EOP-01. "Standard Post Trip Actions"
  - D. 1) The bus is de-energized but the 1A Diesel Generator is running.  
2) 1-EOP-01, "Standard Post Trip Actions"

PSL HLC 19 NRC EXAM

Question 49

Unit 2 was at 100% power when a loss of the 2A DC bus occurs.

Which ONE of the following indicates:

- 1) the Auxiliary Feedwater flow control available from the Control Room?
- 2) the 2C AFW pump steam and feed alignment

(assume AB DC bus aligned to the A side)

The 2B AFW pump and header flow control valves to the:

- A.
  - 1) 2A Steam Generator.
  - 2) Steam from the 2B Steam Generator to the 2C AFW pump feeding the 2A Steam Generator.
- B.
  - 1) 2A Steam Generator.
  - 2) Steam from the 2A Steam Generator to the 2C AFW pump feeding the 2B Steam Generator.
- C.
  - 1) 2B Steam Generator.
  - 2) Steam from the 2A Steam Generator to the 2C AFW pump feeding the 2A Steam Generator.
- D.
  - 1) 2B Steam Generator.
  - 2) Steam from the 2B Steam Generator to the 2C AFW pump feeding the 2B Steam Generator.

PSL HLC 19 NRC EXAM

Question 50

The 1A Emergency Diesel Generator (EDG) is running with its output breaker closed for a surveillance run. 45 minutes into the run the EDG trips on high jacket water temperature.

It has been 30 minutes since the 1A EDG trip and nothing has been reset on the EDG. Jacket water temperature indicates 190°F. Five minutes later a Loss of Offsite power occurs. The Unit Supervisor directs the SNPO to reset the 1A EDG lockout relay.

Which ONE of the following identifies the 1A EDG initial response to the lockout relay reset and what other conditions for running / starting the 1A EDG are applicable?

The 1A EDG will:

- A. start and load on the bus, but will trip if the high jacket water temperature comes back in.
- B. start and load on the bus and continue to run regardless of the jacket water temperature.
- C. NOT start until the jacket water temperature lowers to 180°F.
- D. NOT start until the shutdown relay is also reset.

PSL HLC 19 NRC EXAM

Question 51

Which ONE of the following Unit 1 process monitors, that if failed to perform its control function, could result in an UNMONITORED radioactive effluent release.

- A. Letdown Process Monitor
- B. Component Cooling Water Monitor
- C. Steam Generator Blowdown Monitor
- D. Condenser Air Ejector Monitor

PSL HLC 19 NRC EXAM

Question 52

Unit 1 is backwashing the 1B Turbine Cooling Water heat exchanger strainer. TCW heat exchanger SB21215 "TCW heat exchanger (TCW) inlet cross tie valve" is open.

With SB21215 open, which ONE of the following identifies the operability status of the Intake Cooling water trains and the explanation WHY they are Operable or Inoperable?

- A. BOTH ICW trains are NOT operable due to lack of train separation.
- B. ONLY the 1B ICW train is NOT operable. Minimum 'B' side heat exchanger flow requirements will NOT be met due to increased flow required to backwash the strainer.
- C. BOTH ICW trains are operable. MV-21-2 and MV-21-3, A and B ICW train to TCW Hxs. close on SIAS.
- D. BOTH ICW trains are operable. The Operator performing the backwash is instructed to close SB21215 during accident conditions.

PSL HLC 19 NRC EXAM

Question 53

Unit 1 is at 100% power with the 1C Instrument Air compressor in RUN and the 1D Instrument air compressor is in AUTO.

- The 1C Instrument air compressor tripped on low oil pressure.
- Instrument air pressure has now lowered to 105 psig.

Which ONE of the following identifies the status of the 1D Instrument air compressor?

- A. RUNNING. The compressor AUTO started when the 1C compressor tripped.
- B. RUNNING. The compressor AUTO started at 105 psig.
- C. NOT running. The compressor will AUTO start at 95 psig.
- D. NOT running. The compressor MUST be manually RESET and manually started.

PSL HLC 19 NRC EXAM

Question 54

Unit 1 and Unit 2 are at full power when an Instrument Air leak occurs on Unit 1.

- Instrument Air pressure on Unit 1 is 84 psig.
- Instrument Air pressure on Unit 2 is 95 psig.

Which ONE of the following identifies the status of the Instrument Air crosstie valves?

(UNIT 1)  
PCV-18-6 Inst Air Cross-Tie  
From / To Unit 1

(UNIT 2)  
PCV-18-5 Inst Air Cross-Tie  
From / To Unit 1

A. open

open

B. open

closed

C. closed

closed

D. closed

open

PSL HLC 19 NRC EXAM

Question 55

Which ONE of the following would result in a VIOLATION of Containment Integrity while the Unit is in Mode 1?

- A. The Containment Air Lock inner door is inoperable and the outer door is opened to investigate the inoperable inner door.
- B. A Containment Isolation valve stroke time is in the Alert range.
- C. A motor operated Containment Isolation valve will NOT fully close with the motor but is closed manually and is de-energized.
- D. Opening a locked manual Containment Isolation valve in the penetration room and stationing an operator in the Control Room to close this valve in the event of an accident.

PSL HLC 19 NRC EXAM

Question 56

During a Unit 1 Reactor startup, power has been stable for one hour at 15%.

- CEAs are at 110" on group 7.
- The Turbine is on line.
- The CEDS control is placed in Manual Individual mode to withdraw one CEA in group 7 that is 4" below the other CEA's in the group.
- When the RCO initially withdraws the CEA, the CEA control switch CAN NOT be taken out of the WITHDRAW position.

As a result which ONE of the following will occur? (Assume NO Operator action)

- A. T-ave and T-ref will increase as power rises; the CEA withdrawal will stop when steam bypass demand begins.
- B. T-ave and T-ref will increase as power rises; the CEA withdrawal will stop when any of the cold leg temperatures exceed 549°F.
- C. T-ave will increase as power rises; T-ref will remain approximately the same; the CEA withdrawal will stop when T-ave is 6.6°F greater than T-ref.
- D. T-ave will increase as power rises; T-ref will remain approximately the same; the CEA withdrawal will stop when a group deviation occurs.

PSL HLC 19 NRC EXAM

Question 57

Unit 1 is cooling down for a refueling outage with the following conditions:

- RCS Cold Leg temperature is 300°F.
- RCS pressure is 430 psia.
- BOTH PORV's are selected to Low Range.

A transient occurs and RCS pressure rises to 515 psia with the following in alarm:

<p>PZR RELIEF VALVE ANTICIPATORY ALARM</p> <p>H-21</p>
--

Which ONE of the following states the status of the PORV's?

The PORV's are:

- A. NOT open but will open if RCS pressure rises to  $\geq 530$  psia.
- B. NOT open but will open if RCS Cold Leg temperature lowers to  $\leq 240^\circ\text{F}$ .
- C. OPEN and will NOT automatically close until RCS pressure lowers to  $\leq 510$  psia.
- D. OPEN and will NOT automatically close until RCS Cold Leg temperature rises to  $\geq 307^\circ\text{F}$ .

PSL HLC 19 NRC EXAM

Question 58

The following indications are observed on Unit 1:

<u>Process</u>	<u>S/G 1A Channel A</u>	<u>S/G 1A Channel B</u>	<u>S/G 1B Channel A</u>	<u>S/G 1B Channel B</u>
S/G Level	65%	65%	65%	<b>FAILED LOW</b>
S/G Press	<b>FAILED LOW</b>	880 psia	880 psia	880 psia
FW Hdr. Press	1050 psia	1048 psia	<b>FAILED LOW</b>	1045 psia

If the above failed channels are **NOT** bypassed which ONE of the following failures would result in an AFAS **LOCKOUT**?

- A. S/G 1B Channel A S/G Level failed LOW.
- B. S/G 1A Channel B FW Hdr Pressure failed LOW.
- C. S/G 1B Channel A S/G pressure failed LOW.
- D. S/G 1B Channel B FW Hdr Pressure failed LOW.

PSL HLC 19 NRC EXAM

Question 59

The following indications are observed on Unit 1 QSPDS Channel A and Channel B:

	Channel A	Channel B
CET	????	?598°F

Which ONE of the following indicates the status of the above CET's and the potential use of the CET's for further QSPDS calculations?

- A. Channel A is considered OUT OF RANGE Channels B is considered SUSPECT. BOTH channels are NOT used for further calculations.
- B. Channel A is considered OUT OF RANGE Channel B is considered SUSPECT. Channel A is NOT USED for further calculations Channel B IS used for further calculations.
- C. BOTH Channels ARE considered OUT OF RANGE. BOTH channels are NOT used for further calculations.
- D. BOTH Channels ARE considered OUT OF RANGE. Channel A IS NOT used for further calculations, Channel B IS used for further calculations.

PSL HLC 19 NRC EXAM

Question 60

Unit 1 is experiencing a LOCA and a Loss of Offsite power. ALL safeguards actuated ventilation systems are in service.

Which ONE of the following systems is in service to LIMIT THE RELEASE of Iodine from the Containment and what design feature is installed to improve Iodine removal efficiency?

- A. Shield Building fans HVE-6A and HVE-6B with charcoal filter trains.  
Demisters to remove water particles and heaters to reduce humidity.
- B. Shield Building fans HVE-6A and HVE-6B with charcoal filter trains.  
Demisters to remove water particles and heaters to increase the temperature of the discharged air.
- C. Airborne Radiation Removal units HVE-1 and HVE-2 with charcoal filter trains.  
Demisters to remove water particles.
- D. Airborne Radiation Removal units HVE-1 and HVE-2 with HEPA filters to remove particulate and Iodine.  
Heaters to control humidity.

PSL HLC 19 NRC EXAM

Question 61

Unit 1 has implemented 1-EOP-03, "Loss of Coolant". A Loss Of Offsite Power (LOOP) has also occurred on the Reactor trip. BOTH Emergency Diesel Generators have started and loaded on their respective bus, however the feeder breaker to the MCC 1A5 tripped open.

Which ONE of the following states ALL available Containment Hydrogen removal systems?

- A. 1A and 1B Hydrogen Recombiners. HVE-7A and HVE-7B Hydrogen Purge fans.
- B. 1A and 1B Hydrogen Recombiners. HVE-7B Hydrogen Purge fan.
- C. 1B Hydrogen Recombiner. HVE-7B Hydrogen Purge fan.
- D. 1B Hydrogen Recombiner. HVE-7A and HVE-7B Hydrogen Purge fans.

PSL HLC 19 NRC EXAM

Question 62

Unit 1 is in Mode 6. Given the following events and conditions:

- "A" train Containment Purge system is in service with suction aligned to the Refueling Cavity.
- The Upper Guide Structure is being lifted.
- A CIAS monitor reads 95 mR/Hr
- B CIAS monitor reads 102 mR/Hr
- C CIAS monitor reads 85 mR/Hr
- D CIAS monitor reads 87 mR/Hr

*ALL CIAS MONITORS ARE OPERABLE*

Which ONE of the following statements correctly describes the response of the Containment Purge system?

- A. Containment purge is automatically secured.
- B. Containment purge remains in its current configuration.
- C. The Containment purge suction is automatically aligned to the Containment Ring Header.
- D. The Containment purge discharge is automatically aligned to the Shield Building Exhaust system.

PSL HLC 19 NRC EXAM

Question 63

Unit 1 has experienced an uncomplicated Reactor / Turbine trip. 1-EOP-01, "Standard Post Trip Actions" are complete. The unit is being maintained in Hot Standby conditions using the Steam Dump Control System (SBCS). SBCS controller HIC-8801 is in MANUAL controlling RCS temperature at 532°F. The remainder of the SBCS is in AUTOMATIC. HIC-8801 malfunctions and PCV-8801 goes full OPEN.

Assuming NO operator actions, approximately what RCS temperature will be reached before the cooldown is terminated?

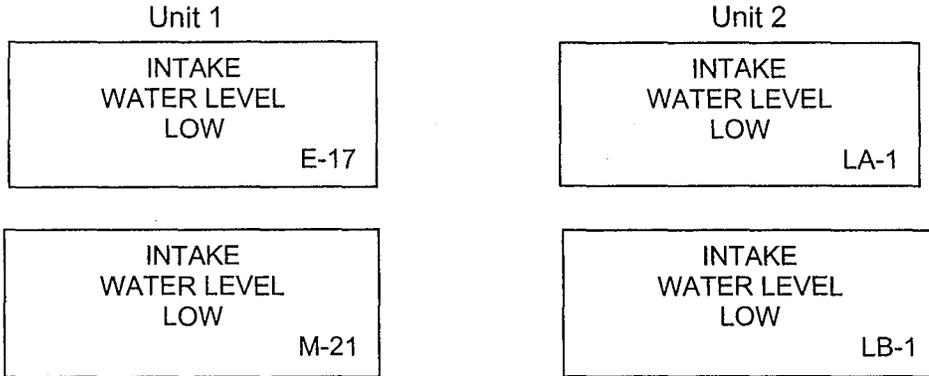
- A. 487°F
- B. 504°F
- C. 519°F
- D. 527°F

PSL HLC 19 NRC EXAM

Question 64

BOTH units are at 100% power. A tornado has touched down east of A1A near the intake canal. The intake canal has sustained damage and is full of debris.

The following alarms have been received:



Local Intake level is -9.5 foot elevation.  
Discharge Canal Level is 10 foot elevation.

The Unit has entered 1(2)-0360030, "Operational Requirements For The Emergency Cooling Water Canal". The SRO has decided to perform a Unit Shutdown. What are the order of expected actions he is going to direct the Operators to perform?

Perform a Unit shutdown and:

- A. open the SE-37-1 and SE-37-2, "UHS Barrier valves". Throttle circulating water pump discharge valves at first sign of pump cavitation.
- B. open the SE-37-1 and SE-37-2, "UHS Barrier valves". Stop the circulating water pumps as the downpower progresses.
- C. stop the circulating water pumps as the downpower progresses. Open SE-37-1 and SE-37-2, "UHS Barrier valves" when the unit is shut down.
- D. throttle circulating water pump discharge valves at first sign of pump cavitation. Open SE-37-1 and SE-37-2, "UHS Barrier valves" when the unit is shut down.

PSL HLC 19 NRC EXAM

Question 65

Unit 1 and Unit 2 have evacuated the Control Rooms due to fires in the cable spreading rooms. Offsite power is available.

1(2)-ONP-100.02, "Control Room Inaccessibility" is being implemented.

- 1) IAW 1(2)-ONP-100.02, which ONE of the following indicates the Appendix R protected trains?
  - A. 1) Unit 1 A train components are protected. Unit 2 B train components are protected.
    - 2) To prevent a start when the protective trips are disabled due to the Normal/Isolate switches placed in ISOLATE.
  - B. 1) Unit 1 B train components area protected. Unit 2 A train components are protected.
    - 2) To prevent an inadvertent start from a fire induced short circuit.
  - C. 1) Both Unit's A train is protected.
    - 2) To prevent an inadvertent start from a fire induced short circuit.
  - D. 1) Both Units B train is protected.
    - 2) To prevent a start when the protective trips are disabled due to the Normal/Isolate switches placed in ISOLATE.
- 2) Which ONE of the following indicates the reason one Emergency Diesel Generator overspeed trip levers on each unit are placed in trip?

PSL HLC 19 NRC EXAM

Question 66

Unit 1 is performing a downpower due to a small Steam Generator tube leak.

A loss of the DEH computer has occurred.

Which ONE of the following indicates the status of the DEH control system and how the downpower will be performed due to the loss of the DEH computer?

DEH control system will be in:

- A. Turbine Manual. Governor Valves (GV) will be manually controlled by GV lower pushbutton operating in SINGLE valve mode.
- B. Turbine Manual. Governor Valves (GV) will be manually controlled by GV lower pushbutton operating in SEQUENTIAL valve mode.
- C. Operator Auto, however, the Governor Valves (GV) will be manually controlled by GV lower pushbutton operating in SINGLE valve mode.
- D. Operator Auto, however, the Governor Valves (GV) will be manually controlled by GV lower pushbutton operating in SEQUENTIAL mode.

PSL HLC 19 NRC EXAM

Question 67

Unit 1 has entered 1-0610030, "Secondary Chemistry – Off Normal"

An Action level 3 Steam Generator parameter has been exceeded.

Which parameter has been exceeded and what action is the plant required to take?

- A. Condensate Dissolved Oxygen.  
Shutdown to Mode 3 as quickly as safe plant operation permits.
- B. Condensate Dissolved Oxygen.  
Bring the parameter to below Action level 3 within 24 hours or perform a shutdown to Mode 3 as quickly as safe plant operation permits.
- C. Cation Conductivity.  
Shutdown to Mode 3 as quickly as safe plant operation permits.
- D. Cation Conductivity.  
Bring the parameter to below Action level 3 within 24 hours or perform a shutdown to Mode 3 as quickly as safe plant operation permits.

PSL HLC 19 NRC EXAM

Question 68

You are an Active Licensed Reactor Operator and have just completed your Biennial physical exam. The Medical Review Officer (MRO) has informed you; you have high blood pressure and must start medication to control this condition.

Which ONE of the following states your ability to stand watch in a Tech Spec position?

You can:

- A. NOT stand watch, however as soon as you start taking blood pressure medication, you will be considered active and can stand shift. Your license will now have a restriction to take the required medication.
- B. NOT stand watch until your medication is started and the Medical review officer re-examines you and determines your blood pressure is acceptable. Your license will now have a restriction to take the required medication.
- C. stand watch until proven the blood pressure medication is not effective in controlling the condition. Your License will NOT have a restriction as long as the medication is controlling the condition.
- D. stand watch until the NRC reviews your condition to determine if the medication can control the condition. Your License will NOT have a restriction as long as the medication is controlling the condition.

PSL HLC 19 NRC EXAM

Question 69

Unit 1 is in a refueling outage.

Which ONE of the following states when Mode 5 is entered?

Mode 5 is entered when:

- A. the FIRST stud and nut on the Head is fully tensioned.
- B. the LAST stud and nut on the Head is fully tensioned.
- C. the Reactor Vessel head is first placed on the Reactor Vessel flange.
- D. ALL the studs and nuts have completed the FIRST pass of tensioning.

## PSL HLC 19 NRC EXAM

### Question 70

Unit 1 has been in a refueling outage for 12 days. The core is being unloaded with the following in service:

- 1A Wide Range Neutron Monitor
- 1B Wide Range Neutron Monitor
- 1A SDC Loop is in service with 3300 gpm flow rate.
- 1B SDC Loop is available but NOT operating.

Which ONE of the following would require suspending core alterations in accordance with Technical Specifications?

- A. 'A' Train manual initiation CIAS surveillance failed.
- B. NO audible indication in the Control Room from the 1B Wide Range Nuclear Instrumentation.
- C. NO visual indication in the Control Room from the 1A Wide Range Nuclear Instrumentation.
- D. The 1B SDC loop is removed from service due to a leaking CCW cooler line.

PSL HLC 19 NRC EXAM

Question 71

Unit 1 is at 100% power preparing for unit shutdown for a refueling outage. The 1A Charging pump is running and the RCO is preparing to start the 1B Charging pump IAW 1-NOP-02.02, "Charging and Letdown".

Which ONE of the following is the correct order to start the 1B Charging Pump?

- A. 1) Start the 1B Charging pump.  
2) Contact the SNPO to ensure the 1B Charging pump is operating properly.  
3) Notify Health Physics the 1B Charging pump is running.
- B. 1) Contact the SNPO to ensure the 1B Charging pump is ready to operate.  
2) Notify Health Physics of the pending start of the 1B Charging pump.  
3) Approximately 15 minutes later, start the 1B Charging pump.
- C. 1) Notify Health Physics of the pending start of the 1B Charging pump.  
2) Start the 1B Charging pump.  
3) Contact the SNPO to ensure the 1B Charging pump is operating properly.
- D. 1) Contact the SNPO to ensure the 1B Charging pump is ready to operate.  
2) Approximately 15 minutes later, start the 1B Charging pump.  
3) Notify Health Physics the 1B Charging pump is running.

PSL HLC 19 NRC EXAM

Question 72

A St. Lucie non-licensed operator is being sent to perform a valve alignment in the RAB. The dose rate in the area of the job is 120 mr/hr. The operator's exposure record to date for the year is 890 mrem.

What is the MAXIMUM time the Operator can stay in this area without exceeding his FPL annual limit? (assume NO extension allowed)

- A. 40 minutes
- B. 45 minutes
- C. 54 minutes
- D. 60 minutes

PSL HLC 19 NRC EXAM

Question 73

Unit 1 has tripped from 100% power. 1-EOP-09, "Loss of Offsite Power / Loss of Forced Circulation" has been implemented. The 1A EDG is NOT running and the 1B EDG is running loaded on its respective bus.

Which ONE of the following MINIMUM conditions indicates when 1-EOP-09 can be exited?

(assume all Safety Functions are being met in 1-EOP-09)

- A. The 1A EDG has been started and is loaded on its respective bus.  
A cool down to Shutdown Cooling conditions is desired.
- B. The 1A EDG has been started and is loaded on its respective bus.  
Maintaining Mode 3 conditions is desired.
- C. Both 1A3 4.16 KV AND 1B3 4.16 KV buses have been restored from the Unit 1 Startup Transformers.  
A cool down to Shutdown Cooling conditions is desired.
- D. The 1A3 4.16 KV OR 1B3 4.16 KV buses have been restored from a Unit 1 Startup Transformer.  
Maintaining Mode 3 conditions is desired.

PSL HLC 19 NRC EXAM

Question 74

Unit 1 Unit Supervisor is directing implementation of 1-EOP-15, "Functional Recovery". Direction to the RO is to perform Safety Function status checks.

Which ONE of the following identifies the instrumentation that is to be selected FIRST to assess the status of Safety Functions?

- A. ERDADS instrumentation
- B. DCS instrumentation
- C. Instrumentation ALSO designated as Remote Shutdown instrumentation.
- D. Instrumentation identified by White Bezel around the face of the instrument.

PSL HLC 19 NRC EXAM

Question 75

Unit 1 has completed 1-EOP-01, "Standard Post Trip Actions" The Unit supervisor has completed the diagnostic flow chart and has implemented an optimal EOP. Shortly after entering this optimal EOP he gives direction to cooldown the RCS to  $T_{HOT}$  less than 510°F.

Which ONE of the following optimal EOP's has the crew entered?

- A. 1-EOP-03, "Loss of Coolant Accident"
- B. 1-EOP-04, "Steam Generator Tube Rupture"
- C. 1-EOP-05, "Excess Steam Demand"
- D. 1-EOP-06, "Total Loss of Feedwater"

## PSL HLC 19 NRC EXAM

### Question 76

I/C was performing a AFAS surveillance on Unit 2 while at 100% power when an inadvertent AFAS-1 occurred. The crew is implementing 2-EOP-01, "Standard Post Trip Actions" with the following:

- The 2B3 4.16KVAC bus did NOT transfer to the startup transformers and the 2B Diesel Generator did NOT start.
- RCS subcooling is 15°F.
- RCS pressure is 1780 psia and lowering.

IAW OPS-521, "Emergency Operating Procedure Implementation" while performing 2-EOP-01, which of the following directions CAN be given to the crew and why?

- A. Override and open Main Feedwater isolation valves on the 'A' side.  
Actions are to be taken to maintain or regain safety functions.
- B. Manually start the 2B Diesel Generator from the RTGB.  
To ensure redundant power available in the event of single train failure of equipment and / or components.
- C. Cooldown the RCS to regain minimum subcooling.  
Actions are to be taken to maintain or regain safety functions.
- D. Manually actuating SIAS.  
If actuation setpoint inevitable, manual actuation will ensure SIAS and all its components have actuated prior to setpoint.

PSL HLC 19 NRC EXAM

Question 77

Unit 1 is experiencing a SBLOCA. While in 1-EOP-03, "LOCA", the leak was isolated at 0400.

The following timeline and conditions exist:

Time	0422	0432	0442	0452
RCS Pressure	1720 psia	1750 psia	1820 psia	1830 psia
RCS temp. ( $T_{hot}$ )	425°F	415°F	410°F	400°F
Pressurizer Level	28%	29%	30%	31%

- 1A Charging pump is running, 1B and 1C Charging pumps have been stopped.
- 1A S/G level is 50% NR with AFW at 150 gpm.
- 1B S/G level is 43% NR with AFW at 160 gpm.
- Containment temperature is 110°F.
- SIAS has NOT been reset.

Which of the following states the:

- 1) Safety function in jeopardy at 0452?
- 2) Actions required to regain / maintain the jeopardized safety function?
  - A. 1) Core Heat removal  
2) Stop the cooldown and depressurize the RCS.
  - B. 1) Core Heat removal  
2) Continue to cooldown up to 100°F in any one hour.
  - C. 1) Pressure control  
2) Continue to cooldown up to 100°F in any one hour.
  - D. 1) Pressure control  
2) Stop the cooldown and depressurize the RCS.

PSL HLC 19 NRC EXAM

Question 78

Unit 2 is performing a Natural Circulation cooldown IAW 2-0120039, "Natural Circulation Cooldown".

At time 0220 the following conditions were noted:

- Pressurizer pressure is 1620 psia.
- SIAS has been blocked.
- RCS temperature is 490°F and lowering.
- BAM tanks and RWT are NOT available for makeup to the RCS.
- Pressurizer level is 30% and lowering at a rate of 1.2% every 30 minutes.

Based on the above conditions:

- 1) In accordance with Technical Specifications when is the earliest the Pressurizer would be considered Inoperable and what is the required action if the Pressurizer is declared inoperable?
- 2) What lineup is available for makeup to the RCS?
  - A. 1) 0320, be in HOT SHUTDOWN within 6 hours  
2) Safety Injection tanks directly to the suction of the Charging Pumps
  - B. 1) 0358, be in HOT SHUTDOWN within 6 hours  
2) Safety Injection tanks directly to the VCT to the suction of the Charging Pumps
  - C. 1) 0320, be in HOT SHUTDOWN within 72 hours  
2) Safety Injection tanks directly to the VCT to the suction of the Charging Pumps
  - D. 1) 0358, be in HOT SHUTDOWN within 72 hours  
2) Safety Injection tanks directly to the suction of the Charging Pumps

PSL HLC 19 NRC EXAM

Question 79

Unit 1 was at 100% power when a loss of the 1A DC bus occurs.

Which of the following indicates:

- 1) The response of the Auxiliary Feedwater Actuation System (AFAS)?
  - 2) Which Technical Specification action statement applies to the loss of the A DC bus?
- A. 1) Channel A will be in bypass, channel C will be in trip. If SG levels drop to <19% narrow range, full AFAS actuation will occur in 235 seconds.  
2) Restore the 1A DC bus to operable status within 2 hours.
- B. 1) Channel A will be in bypass, channel C will be in trip. If SG levels drop to <19% narrow range, full AFAS actuation will occur in 210 seconds.  
2) Restore the 1A DC bus to operable status within 6 hours.
- C. 1) Channel A will be in trip, channel C will be in bypass. If SG levels drop to <19% narrow range, full AFAS actuation will occur in 210 seconds.  
2) Restore the 1A DC bus to operable status within 2 hours.
- D. 1) Channel A will be in trip, channel C will be in bypass. If SG levels drop to <19% narrow range, full AFAS actuation will occur in 235 seconds.  
2) Restore the 1A DC bus to operable status within 6 hours.

Question 80

Unit 1 has tripped 10 minutes ago, from 100% power with the following:

**Time 0220**

- 1C Charging pump is out of service
- 1A and 1B Charging pumps are operating
- Letdown has been isolated
- SG Blowdown and SJAЕ Monitors are in alarm
- Pressurizer level is 22% and lowering
- Pressurizer pressure is 1980 psia and lowering
- Tave is 532°F and stable with SBCS in automatic

**Time 0240**

- A loss of offsite power occurs and both EDG's start and load on their respective buses.

Which ONE of the following identifies the Emergency Classifications for the above times?

- A. Unusual Event at Time 0220. Site Area Emergency at Time 0240.
- B. Unusual Event at Time 0220. Alert at Time 0240.
- C. Alert at Time 0220. Site Area Emergency at Time 0240.
- D. Alert at Time 0220. General Emergency at Time 0240.

PSL HLC 19 NRC EXAM

Question 81

Unit 1 is at 100% power. The following alarm is received:



The 1A Containment Instrument air compressor has tripped and the 1B Containment Instrument air compressor has been out of service for 30 days.

Containment Instrument air pressure is 79 psig and slowly lowering. Outside Instrument air pressure is 105 psig and stable.

1) Which ONE of the following is performed IAW the ARP?

A few minutes later it was determined an Instrument air leak is occurring.

2) If Containment air pressure continues to lower, what procedure is implemented and what actions are carried out?

- A. 1) Ensure MV-18-1, "Instrument air to Containment" is OPEN.  
2) Implement 1-101003, "Loss of Instrument Air". CLOSE MV-18-1. Stop running Charging pumps due to loss of letdown.
- B. 1) Ensure MV-18-1, "Instrument air to Containment" is OPEN.  
2) Trip the Reactor and implement 1-EOP-01, CLOSE MV-18-1. Stop all RCP's due to loss of CCW.
- C. 1) CLOSE MV-18-1, "Instrument air to Containment".  
2) Implement 1-101003, "Loss of Instrument Air". Stop running Charging pumps due to loss of letdown.
- D. 1) CLOSE MV-18-1, "Instrument air to Containment".  
2) Trip the Reactor and implement 1-EOP-01. Stop all RCP's due to loss of CCW.

PSL HLC 19 NRC EXAM

Question 82

Unit 1 is at 100% power with the following Reactor Coolant System Leakage rates.

1A Steam Generator: .05 gpm

1B Steam Generator: .11 gpm

Which ONE of the following states the Technical Specification Reactor Coolant System Leakage that is being exceeded and what is the applicable action statement?

- A. TOTAL of 1A and 1B Steam Generator together exceeds the Tech. Spec. limit. Be in at least Hot Standby within 6 hours.
- B. ONLY 1B Steam Generator leakage exceeds the Tech. Spec. limit. Be in at least Hot Standby within 6 hours.
- C. ONLY 1B Steam Generator leakage exceeds the Tech. Spec. limit. Be in at least Hot Standby within 4 hours.
- D. TOTAL of 1A and 1B Steam Generator together exceeds the Tech. Spec. limit. Be in at least Hot Standby within 4 hours.

PSL HLC 19 NRC EXAM

Question 83

Given the following events on Unit 1:

0912: Unit 1 tripped from 100% power and an inadvertent SIAS occurred and has yet to be reset.

0923: A fire alarm was received in the Control Room.

0925: The NPO confirmed an uncontrolled lube oil fire under the HP Turbine.

0927: Both 1A & 1B Fire Pumps are manually started.

0940: The Fire Brigade is fighting the fire but it is NOT under control.

0941: a Loss of Offsite Power (LOOP) occurs.

- 1) What will be the status of the electric Fire Pumps in support of the fire fighting effort?
- 2) At what time is the E-Plan EAL required to be declared?
  - A. 1) Both Fire pumps will AUTOMATICALLY restart following a time delay after EDG breaker closure.  
2) 0935
  - B. 1) Both Fire pumps will AUTOMATICALLY restart following a time delay after EDG breaker closure.  
2) 0940
  - C. 1) Both Fire pumps must be MANUALLY restarted following EDG breaker closure.  
2) 0940
  - D. 1) Both Fire pumps must be MANUALLY restarted following EDG breaker closure.  
2) 0935

PSL HLC 19 NRC EXAM

Question 84

The following are the Unit 1 QSPDS indications.

	Incore Thermocouples Operable	Reactor Vessel Level Monitoring Sys. Operable
Channel A	3/core quadrant	4 sensors
Channel B	2/core quadrant	3 sensors

In accordance with Technical Specifications which ONE of the following states the operability of the above systems?

- A. Channel A and Channel B for Incore and Reactor Vessel Level are OPERABLE.
- B. Channel A for Incore and Reactor Vessel are operable, Channel B for Incore and Reactor level are INOPERABLE.
- C. Channel A and B for Incore are OPERABLE, Channel A for Reactor Vessel is OPERABLE, Channel B for Reactor Vessel is INOPERABLE.
- D. Channel A for Incore is OPERABLE, Channel B for Incore is INOPERABLE. Channel A and B for Reactor Vessel are both OPERABLE.

PSL HLC 19 NRC EXAM

Question 85

Unit 1 has been at 100% power for 67 days:

RR-2202, "Process radiation monitor" has indicated a significant increase in the selected isotope and Gross activity has NOT significantly changed. The Unit Supervisor has implemented 1-ONP-26.01, "Process Radiation Monitors".

- 1) Based on the above indications, what has occurred in the RCS?
- 2) What Technical Specification action is required if the selected isotope exceeds the limit for longer than the allowable time?
  - A. 1) Fuel Failure  
2) Be in HOT STANDBY with  $T_{ave} < 500^{\circ}\text{F}$  within 6 hours.
  - B. 1) Crud Burst  
2) Be in HOT STANDBY with  $T_{ave} < 500^{\circ}\text{F}$  within 6 hours.
  - C. 1) Fuel Failure  
2) Be in HOT STANDBY with  $T_{ave} < 515^{\circ}\text{F}$  within 6 hours.
  - D. 1) Crud Burst  
2) Be in HOT STANDBY with  $T_{ave} < 515^{\circ}\text{F}$  within 6 hours.

PSL HLC 19 NRC EXAM

Question 86

Unit 1 is in Mode 5 performing 1-NOP-01.05, "FILLING AND VENTING THE RCS". The RCS is solid and the crew is preparing to start the first RCP for venting after a Short Notice Outage (SNO). The following conditions exist:

- RCS temperature is 140°F.
  - RCS pressure is 310 psia.
  - Secondary side of the Steam Generator is 145°F.
- 1) Which of the following states the acceptability of starting the RCP?
  - 2) What are the Technical Specification bases for the criteria to start the RCP?

- A. 1) The RCP may NOT be started with the current RCS / Steam Generator  $\Delta T$ .  
2) To prevent RCS overpressurization due to energy addition to the RCS.
- B. 1) The RCP may NOT be started with the current RCS / Steam Generator  $\Delta T$ .  
2) To prevent challenging the opening of the PORV's which are NOT designed to relieve a water solid condition.
- C. 1) The RCP MAY be started with the current RCS / Steam Generator  $\Delta T$ .  
2) To prevent RCS overpressurization due to energy addition to the RCS.
- D. 1) The RCP MAY be started with the current RCS / Steam Generator  $\Delta T$ .  
2) To prevent challenging the opening of the PORV's which are NOT designed to relieve a water solid condition.

PSL HLC 19 NRC EXAM

Question 87

Unit 2 was operating at 100% power. Given the following events and conditions on 8/20 at 0200:

- DCS is temporarily out of service.
- Proportional heater bank P1 breaker failed
- Surveillance 2-OSP-100.02 (*Schedule of Periodic Tests, Checks and Calibrations Week 2*) step 7.4 (Thursday) was conducted.
- The following results were obtained for Pressurizer backup heaters:
  - 1E bus voltage = 480 volts
  - B1 = 182 amps
  - B4 = 192 amps

Given:

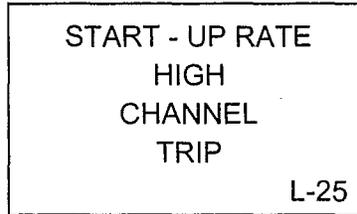
- Heater KW calculation:  $\sqrt{3} \times \text{amps} \times \text{volts} / 1000$
- The DCS and backup manual method calculates heater KW from the 4.16KV side. Losses of approximately 5 KW will occur in Pressurizer heater step down transformers.

Which ONE of the following statements correctly describes the required maintenance actions to allow continued operation at 100%?

- A. Power operations may continue with NO restrictions. Schedule maintenance to repair the proportional heater breaker during the next scheduled maintenance period.
- B. Schedule maintenance to repair and have the proportional heater group made operable NO later than 8/23 at 0200.
- C. Schedule maintenance to repair and have the backup heater group B1 made operable NO later than 8/23 at 0200.
- D. Schedule maintenance to repair and have the backup heater group B1 made operable NO later than 8/20 at 0800.

Question 88

Unit 2 is at 2% power and performing a Reactor startup when the following alarm illuminates:



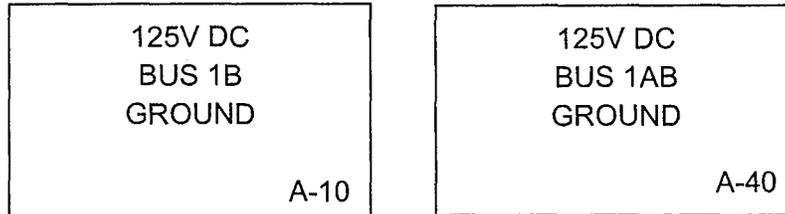
Reactor power remains unchanged.

- 1) Which ONE of the following could have caused the annunciator to illuminate?
- 2) As a result of the above condition, what are the required Technical Specification actions?
  - A. 1) Wide Range Nuclear Instrument failing HIGH  
2) Bypass or trip the failed channel within one hour. Start up may continue, however, the channel must be restored to operable status or placed in the tripped condition.
  - B. 1) Wide Range Nuclear Instrument failing HIGH  
2) Bypass or trip the failed channel within one hour. Start up may continue with the channel in bypass, however, the channel shall be returned to operable status NO later than during the next cold shutdown.
  - C. 1) Linear Range Nuclear Instrument failing HIGH  
2) Bypass or trip the failed channel within one hour. Start up may continue, however, the channel must be restored to operable status or placed in the tripped condition.
  - D. 1) Linear Range Nuclear Instrument failing HIGH  
2) Bypass or trip the failed channel within one hour. Start up may continue with the channel in bypass, however, the channel shall be returned to operable status NO later than during the next cold shutdown.

PSL HLC 19 NRC EXAM

Question 89

Unit 1 has received the following alarms:



The 1AB DC Bus is cross-tied to the 1B DC Bus.

- 1) Which of the following procedures will be implemented FIRST in an attempt to determine the ground location?
  - 2) When the 125V DC Bus 1B and 1AB bus are separated, what Technical Specification equipment could be affected?
- 
- A. 1) 1-ONP-50.01, "125V DC GROUND DIAGNOSTIC"  
2) 1B / 1BB Battery Charger
  - B. 1) 1-ONP-50.01, "125V DC GROUND DIAGNOSTIC"  
2) AFW PP 1C
  - C. 1) 1-ONP-50.04, "125V DC BUS 1AB GROUND ISOLATION"  
2) 1B / 1BB Battery Charger
  - D. 1) 1-ONP-50.04, "125V DC BUS 1AB GROUND ISOLATION"  
2) AFW PP 1C

PSL HLC 19 NRC EXAM

Question 90

Given the following conditions:

- Unit 2 is at 100% power.
- 2A and 2B Intake Cooling Water pumps are operating on their respective headers.
- 2C Intake Cooling Water pump is in standby aligned to the A header.
- The 2B Intake Cooling Water pump trips unexpectedly.

- 1) Which ONE of the following states the acceptability of an "IMMEDIATE ATTEMPT" to restart the 2B Intake Cooling water pump?
- 2) Which ONE of the following would be the required actions if the 2C Intake Cooling Water pump was started with the pump valve alignment configured to the B side but the electrical alignment remained to the A side?
  - A. 1) One restart attempt IS allowed for the stated conditions.  
2) The respective offsite power source AND the 2B Intake Cooling train must be declared out of service.
  - B. 1) One restart attempt IS NOT allowed for the stated conditions.  
2) ONLY the 2B Intake Cooling train must be declared out of service.
  - C. 1) One restart attempt IS allowed for the stated conditions.  
2) ONLY the 2B Intake Cooling train must be declared out of service.
  - D. 1) One restart attempt IS NOT allowed for the stated conditions.  
2) The respective offsite power source AND the 2B Intake Cooling train must be declared out of service.

PSL HLC 19 NRC EXAM

Question 91

Unit 2 has been in a Large Break LOCA for 48 hours with the following conditions:

- Containment Temperature is 120°F.
- 1) As Unit Supervisor, in accordance with 2-EOP-03, "LOCA", when would you direct starting of Hydrogen Purge fans HVE-7A and / or HVE-7B?
  - 2) If the Hydrogen Purge fans were started the following Annunciator illuminates,

CONT CNTMT/ H <sub>2</sub> PURGE ADSORBER TEMP HIGH X-1
---

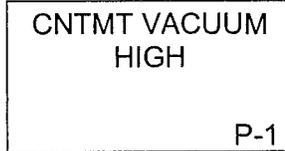
What would be the most likely cause of this alarm?

- A. 1) After consultation with the TSC, if the Hydrogen Recombiners CANNOT maintain H<sub>2</sub> concentration less than 3.5%  
2) Restricted air flow through the filter train
- B. 1) After consultation with the TSC, if the Hydrogen Recombiners CANNOT maintain H<sub>2</sub> concentration less than 3.5%  
2) High Containment temperature
- C. 1) After consultation with the TSC, any H<sub>2</sub> concentration when the Hydrogen Recombiners are NOT available  
2) Restricted air flow through the filter train
- D. 1) After consultation with the TSC, any H<sub>2</sub> concentration when the Hydrogen Recombiners are NOT available  
2) High Containment temperature

PSL HLC 19 NRC EXAM

Question 92

Unit 1 is in Mode 3 performing a Containment (Cntmt) Purge using HVE-8A when the following alarm is received:



Which ONE of the following:

- 1) Operator actions should be taken and
- 2) Identifies the Technical Specification bases for Containment pressure?

STOP HVE-8A Cntmt Purge fan and:

- A.
  - 1) manually OPEN FCV-25-1, 2 and 3 Cntmt Purge Makeup Valves.
  - 2) Limit peak containment pressure during steam line break accident conditions. Limit negative pressure differential with respect to annulus atmosphere to prevent Containment structure from exceeding design negative pressure.
- B.
  - 1) verify FCV-25-1, 2 and 3 Cntmt Purge Makeup Valves have CLOSED
  - 2) Limit peak containment pressure during steam line break accident conditions. Limit negative pressure differential with respect to annulus atmosphere to prevent Containment structure from exceeding design negative pressure.
- C.
  - 1) manually OPEN FCV-25-1, 2 and 3 Cntmt Purge Makeup Valves.
  - 2) Limit peak containment pressure during loss of coolant accident conditions. Limit negative pressure differential with respect to outside atmosphere to prevent Containment structure from exceeding design negative pressure.
- D.
  - 1) verify FCV-25-1, 2 and 3 Cntmt Purge Makeup Valves have CLOSED.
  - 2) Limit peak containment pressure during loss of coolant accident conditions. Limit negative pressure differential with respect to outside atmosphere to prevent Containment structure from exceeding design negative pressure.

PSL HLC 19 NRC EXAM

Question 93

Unit 2 is performing refueling operations. 2-NOP-67.04, "Refueling Machine Operation" is in use.

Appendix F, "Troubleshooting An Overload Condition While Raising a Fuel Assembly" is being implemented due to an overload condition.

The Refueling Machine operator questions the Refueling SRO if the Programmable Logic Controller (PLC) override can be used to override the overload and raise the fuel bundle.

As the Refueling SRO, which ONE of the following identifies the direction you would provide to the Refueling Machine operator and why?

PLC override is:

- A. NOT allowed for the above conditions. PLC override is ONLY to be used to place a fuel bundle in a safe condition for specific equipment failures.
- B. NOT allowed for the above conditions. PLC override is ONLY to be used for preoperational testing of the Refueling Machine interlocks prior to fuel movement.
- C. ALLOWED to be used for the above conditions. PLC override does not override the Technical Specification overload cut off limit.
- D. ALLOWED to be used for the above conditions but ONLY after the Bridge and Trolley positioning is not successful in clearing the overload condition.

PSL HLC 19 NRC EXAM

Question 94

Unit 2 has tripped due to the loss of the 2A Main Feedwater Pump. Upon the trip a Main Steam Safety Valve (MSSV) on the 2A Steam Generator stuck open and has failed to reseal. A Steam Generator Tube leak on the 2B S/G was identified post trip. S/G Blowdown radiation monitors are in alarm. The crew has entered 2-EOP-15, "Functional Recovery". The MSIV's were closed and the following conditions exist:

- 2A S/G pressure is 710 psia lowering.
  - 2B S/G pressure is 790 psia stable.
- 1) Which ONE of the following S/G's is considered the MOST AFFECTED S/G?
  - 2) When is the faulted S/G considered NO LONGER FAULTED and what EOP will be utilized when the SG is no longer considered faulted?
- A. 1) 2B S/G.  
2) When the MSSV is gagged. Remain in EOP-15
- B. 1) 2B S/G  
2) When EOP-99 Appendix R, "Steam Generator Isolation" is complete. Exit to EOP-04, "Steam Generator Tube Rupture".
- C. 1) 2A S/G  
2) When the MSSV is gagged. Remain in EOP-15
- D. 1) 2A S/G  
2) When EOP-99 Appendix R, "Steam Generator Isolation" is complete. Exit to EOP-04, "Steam Generator Tube Rupture".

PSL HLC 19 NRC EXAM

Question 95

Unit 2 has tripped from 100% power. A Loss Of Offsite Power (LOOP) occurred during the trip. The following conditions were noted immediately after the trip:

- 2A EDG is running with its output breaker closed.
- 2B EDG is running but its breaker failed to close, no abnormal alarms noted.
- Steam Generator pressures are 1000 psia.
- RCS pressure is 2200 psia stable.
- ONLY the 2A Charging pump is running.
- Pressurizer level is 35% slowly lowering.
- ONE CEA is at the Upper Electrical Limit (UEL).

Which ONE of the following directions can be given to the RCO's prior to formal entry into 1-EOP-01, "Standard Post Trip Actions"?

- A. Direct RCO to contact the field operator to perform Appendix X, direct RCO to close MSR TCV's.
- B. Direct RCS depressurized to between 1800-1850 psia, direct start of 2C Charging pump.
- C. Direct RCO to close the MSIV's, direct RCO to emergency borate.
- D. Direct ADV's operated to control Steam Generator pressure, direct one attempt to close the 2B EDG output breaker.

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Question 96

Which ONE of the following work activities are examples that are controlled by:

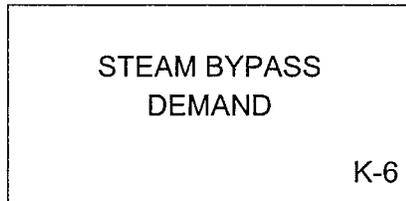
- 1) 0-ADM-80.01, "Control Of Fix It Now / Minor Maintenance Work Activities"?
  - 2) What work activities require the SRO / Shift SRO permission to start?
- 
- A. 1) Adjusting packing on pumps that are Quality AND Safety Related.  
2) Work that involves installed plant equipment within the power block.
  - B. 1) Adjusting packing on pumps that are Quality Related equipment ONLY.  
2) Work that involves installed plant equipment within the power block.
  - C. 1) Minor welding on Quality Related OR Safety Related equipment.  
2) Work activities that require a Equipment Clearance Order.
  - D. 1) Minor welding on Quality Related equipment ONLY.  
2) Work activities that require a Equipment Clearance Order.

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Question 97

Unit 1 is at 100% power steady state.

The following annunciator was alarming approximately every 30 minutes for the past 8 hours. I/C has determined a faulty circuit is causing the alarm. The annunciator has been defeated for 10 days.



- 1) The above annunciator was:
- 2) The annuncaitor is tracked by:
  - A. 1) CONSIDERED a nuisance annunciator.  
2) ADM-17.18, "Temporary System Alteration"
  - B. 1) CONSIDERED a nuisance annunciator  
2) ADM-09.03, "Administrative Control Of Defeated Annunciators"
  - C. 1) NOT CONSIDERED a nuisance annunciator.  
2) ADM-17.18, "Temporary System Alteration"
  - D. 1) NOT CONSIDERED a nuisance annunciator.  
2) ADM-09.03, "Administrative Control Of Defeated Annunciators"

Question 98

Unit 1 is operating at full power. Given the following events and conditions:

- A radioactive liquid release is in progress from the 1B waste monitor storage tank.
- Liquid Release Permit # 09-36 was issued to authorize this release.
- After 30 minutes, liquid radwaste discharge radiation monitor channel R-6627 (channel #43) alarms, the monitor indicates off-scale HIGH.
- The Desk RCO reports that all the actions of ONP 1-0510030, "*Uncontrolled Release of Radioactive Liquids*", have been completed.
- I&C reports that Channel R-6627 has failed HIGH and will be out of service for at least 60 days.

Which ONE of the following statements correctly describes the required actions to properly complete the discharge from the 1B Waste Monitor Storage Tank?

- A. Restart the release using permit #09-36 with periodic grab samples in lieu of an OPERABLE radiation monitor.
- B. Issue a new release permit with independent sample and valve lineup verifications.
- C. Restart the release using permit #09-36, after independently verifying the release rate calculations.
- D. Issue a new release permit using periodic grab samples in lieu of an OPERABLE radiation monitor.

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Question 99

**ATTACHMENT 3**

Safety Functions	Success Paths	Checkoffs	
		1	2
Reactivity Control	RC-1, CEA Insertion	X	X
	RC-2, Boration via CVCS		
	RC-3, Boration via SIAS		
Maint. of Vital Aux. DC	MVA-DC-1, Batteries/Chargers	X	X
Maint. of Vital Aux. AC	MVA-AC-1, Startup Transformers		
	MVA-AC-2, EDG's	X	X
	MVA-AC-3, Unit Crosstie		
RCS Inventory Control	IC-1, CVCS		
	IC-2, Safety Injection	X	X
RCS Pressure Control	PC-1, Subcooled		X
	PC-2, PORV's/PZR Vent		
	PC-3, Saturated Control	X	
RCS & Core Heat	HR-1, S/G Without SIAS		
	HR-2, S/G With SIAS	X	X
	HR-3, Once Through Cooling		
Containment Isol	CI-1, Automatic/Manual Isol	X	X
Cntmt. Press & Temp	CTPC-1, Normal Cntmt Fans		
	CTPC-2, Cntmt Coolers		X
	CTPC-3, Cntmt Spray	O	
Cnmt. Comb Gas	CCGC-1 Hydrogen <3.5%	X	X
	CCGC-1 Hydrogen >3.5%		

Unit 1 is in 1-EOP-15, "Functional Recovery". The above safety functions and success paths were evaluated over a period of 30 minutes. Based on the above, what success path instructions would be performed FIRST for Checkoff #1 and Checkoff #2?

- A. 1) Maint. of Vital Aux. AC, success path MVA-AC-2, EDG's  
2) Maint. of Vital Aux. AC, success path MVA-AC-2, EDG's
- B. 1) Cntmt. Press & Temp, success path CTPC-3, Cntmt Spray  
2) Reactivity Control, success path RC-1, CEA Insertion
- C. 1) Reactivity Control, success path RC-1, CEA Insertion  
2) Reactivity Control, success path RC-1, CEA Insertion
- D. 1) Cntmt. Press & Temp, success path CTPC-3, Cntmt Spray  
2) Maint. of Vital Aux. AC, success path MVA-AC-2, EDG's

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Question 100

Which ONE of the following events is REQUIRED to be reported and who are the agencies that will be notified?

- A. Two dead raccoons with apparent rabies have been discovered within the protected area. Notify Florida Fish and Wildlife Conservation Commission.
- B. Loss of 50% of the backup notification method used to notify the State and NRC. Notify State Watch Office and the NRC.
- C. A Tornado is sighted in the Met Tower parking lot area. Notify State Watch Office and the NRC.
- D. A major automobile accident has blocked A1A south of the plant prohibiting southbound evacuation of the site, if needed. Notify State Watch Office and the NRC.

## **St. Lucie HLC-19 NRC RO / SRO December 2009 Written Exam References**

1. Generator Capability Curve
2. Steam Tables
3. 1-EOP-99, Figures 1A &1B RCS Pressure Temperature
4. 1-EOP-99, Figure 2, Safety Injection Flow VS. RCS Pressure
5. Figure 3 and 4, 2-ONP-100.02 Control Room Inaccessibility

**ANSWER KEY REPORT**  
for 2009 SRO Test Test Form: 0

#	ID	Points	Type	Answers
1	ANSWER_KEY 1	1.00	MCS	A
2	ANSWER_KEY 2	1.00	MCS	B
3	ANSWER_KEY 3	1.00	MCS	C
4	ANSWER_KEY 4	1.00	MCS	C
5	ANSWER_KEY 5	1.00	MCS	C
6	ANSWER_KEY 6	1.00	MCS	A
7	ANSWER_KEY 7	1.00	MCS	C
8	ANSWER_KEY 8	1.00	MCS	A
9	ANSWER_KEY 9	1.00	MCS	B
10	ANSWER_KEY 10	1.00	MCS	A
11	ANSWER_KEY 11	1.00	MCS	C
12	ANSWER_KEY 12	1.00	MCS	D
13	ANSWER_KEY 13	1.00	MCS	C
14	ANSWER_KEY 14	1.00	MCS	A
15	ANSWER_KEY 15	1.00	MCS	D
16	ANSWER_KEY 16	1.00	MCS	B
17	ANSWER_KEY 17	1.00	MCS	B
18	ANSWER_KEY 18	1.00	MCS	D
19	ANSWER_KEY 19	1.00	MCS	A
20	ANSWER_KEY 20	1.00	MCS	C
21	ANSWER_KEY 21	1.00	MCS	A
22	ANSWER_KEY 22	1.00	MCS	B
23	ANSWER_KEY 23	1.00	MCM	B (1.00) D (1.00)
24	ANSWER_KEY 24	1.00	MCS	D
25	ANSWER_KEY 25	1.00	MCS	D
26	ANSWER_KEY 26	1.00	MCS	D
27	ANSWER_KEY 27	1.00	MCS	B
28	ANSWER_KEY 28	1.00	MCS	A
29	ANSWER_KEY 29	1.00	MCS	A
30	ANSWER_KEY 30	1.00	MCS	C
31	ANSWER_KEY 31	1.00	MCS	D
32	ANSWER_KEY 32	1.00	MCS	D
33	ANSWER_KEY 33	1.00	MCS	C
34	ANSWER_KEY 34	1.00	MCS	C
35	ANSWER_KEY 35	1.00	MCS	B
36	ANSWER_KEY 36	1.00	MCS	C
37	ANSWER_KEY 37	1.00	MCS	A
38	ANSWER_KEY 38	1.00	MCS	B
39	ANSWER_KEY 39	1.00	MCS	D
40	ANSWER_KEY 40	1.00	MCS	D
41	ANSWER_KEY 41	1.00	MCS	A
42	ANSWER_KEY 42	1.00	MCM	C (1.00) D (1.00)
43	ANSWER_KEY 43	1.00	MCS	D
44	ANSWER_KEY 44	1.00	MCS	C
45	ANSWER_KEY 45	1.00	MCS	B
46	ANSWER_KEY 46	1.00	MCS	A

**ANSWER KEY REPORT**  
for 2009 SRO Test Test Form: 0

#	ID	Points	Type	0	Answers
47	ANSWER_KEY 47	1.00	MCS	C	
48	ANSWER_KEY 48	1.00	MCS	B	
49	ANSWER_KEY 49	1.00	MCS	C	
50	ANSWER_KEY 50	1.00	MCS	B	
51	ANSWER_KEY 51	1.00	MCM	B (1.00) C (1.00)	
52	ANSWER_KEY 52	1.00	MCS	C	
53	ANSWER_KEY 53	1.00	MCS	B	
54	ANSWER_KEY 54	1.00	MCS	D	
55	ANSWER_KEY 55	1.00	MCS	D	
56	ANSWER_KEY 56	1.00	MCS	D	
57	ANSWER_KEY 57	1.00	MCS	A	
58	ANSWER_KEY 58	1.00	MCS	D	
59	ANSWER_KEY 59	1.00	MCS	A	
60	ANSWER_KEY 60	1.00	MCS	A	
61	ANSWER_KEY 61	1.00	MCS	D	
62	ANSWER_KEY 62	1.00	MCS	A	
63	ANSWER_KEY 63	1.00	MCS	C	
64	ANSWER_KEY 64	1.00	MCS	C	
65	ANSWER_KEY 65	1.00	MCS	B	
66	ANSWER_KEY 66	1.00	MCS	A	
67	ANSWER_KEY 67	1.00	MCS	C	
68	ANSWER_KEY 68	1.00	MCS	B	
69	ANSWER_KEY 69	1.00	MCS	B	
70	ANSWER_KEY 70	1.00	MCS	C	
71	ANSWER_KEY 71	1.00	MCS	B	
72	ANSWER_KEY 72	1.00	MCS	C	
73	ANSWER_KEY 73	1.00	MCS	D	
74	ANSWER_KEY 74	1.00	MCS	D	
75	ANSWER_KEY 75	1.00	MCS	B	
76	ANSWER_KEY 76	1.00	MCS	B	
77	ANSWER_KEY 77	1.00	MCS	D	
78	ANSWER_KEY 78	1.00	MCS	B	
79	ANSWER_KEY 79	1.00	MCS	A	
80	ANSWER_KEY 80	1.00	MCS	C	
81	ANSWER_KEY 81	1.00	MCS	A	
82	ANSWER_KEY 82	1.00	MCS	B	
83	ANSWER_KEY 83	1.00	MCS	D	
84	ANSWER_KEY 84	1.00	MCS	C	
85	ANSWER_KEY 85	1.00	MCS	A	
86	ANSWER_KEY 86	1.00	MCS	C	
87	ANSWER_KEY 87	1.00	MCS	C	
88	ANSWER_KEY 88	1.00	MCS	B	
89	ANSWER_KEY 89	1.00	MCS	B	
90	ANSWER_KEY 90	1.00	MCS	B	
91	ANSWER_KEY 91	1.00	MCS	A	
92	ANSWER_KEY 92	1.00	MCS	B	

**ANSWER KEY REPORT**  
for 2009 SRO Test Test Form: 0

#	ID	Points	Type	0	Answers
93	ANSWER_KEY 93	1.00	MCS	A	
94	ANSWER_KEY 94	1.00	MCS	C	
95	ANSWER_KEY 95	1.00	MCS	D	
96	ANSWER_KEY 96	1.00	MCS	B	
97	ANSWER_KEY 97	1.00	MCS	A	
98	ANSWER_KEY 98	1.00	MCS	B	
99	ANSWER_KEY 99	1.00	MCS	D	
100	ANSWER_KEY 100	1.00	MCS	C	
<b>SECTION 1 ( 100 items)</b>		<b>100.00</b>			